

Section 1-3 : Rockets and Satellites

How Rockets Work:

A rocket moves forward when gases from the rear of the rocket push it in the opposite direction.



****For every action there is an equal and opposite reaction****

Video: [Rockets go boom.](#)

Video: [The risks of rocketry](#)

Multi-Stage Rockets

- 1950s and 1960s - space exploration (moon missions)
- As each section (called a stage) uses up its fuel, it drops off. The next stage then ignites.
- Most famous multi-stage rocket was the **Saturn V** rocket used to launch man to the moon.



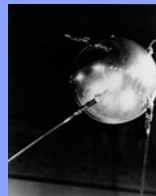
Saturn V



Artificial Satellites

Satellite - any natural or artificial object that revolves around an object in space

First artificial satellite -
Sputnik 1
(10/1957 - Soviet Union)



First USA artificial satellite -
Explorer 1 (2/1958)

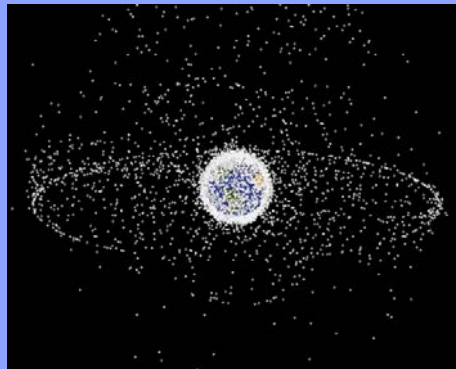


Began the “**Space Race**” between
USSR and USA

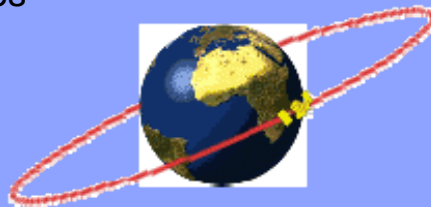
Since 1957, thousands of artificial satellites placed in orbit around earth

Satellites and space stations are used for communications, navigation, collecting weather data, and research.

Thousands of objects are orbiting earth right now



Geosynchronous Orbit – satellites that revolve around the earth at the same rate the earth rotates

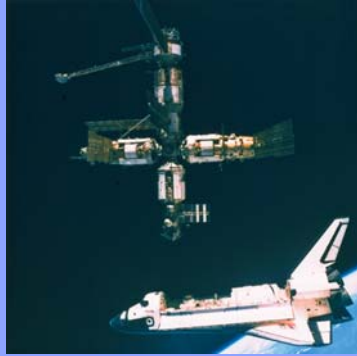


Hubble Telescope – a satellite telescope used to look deep into space



Space Stations

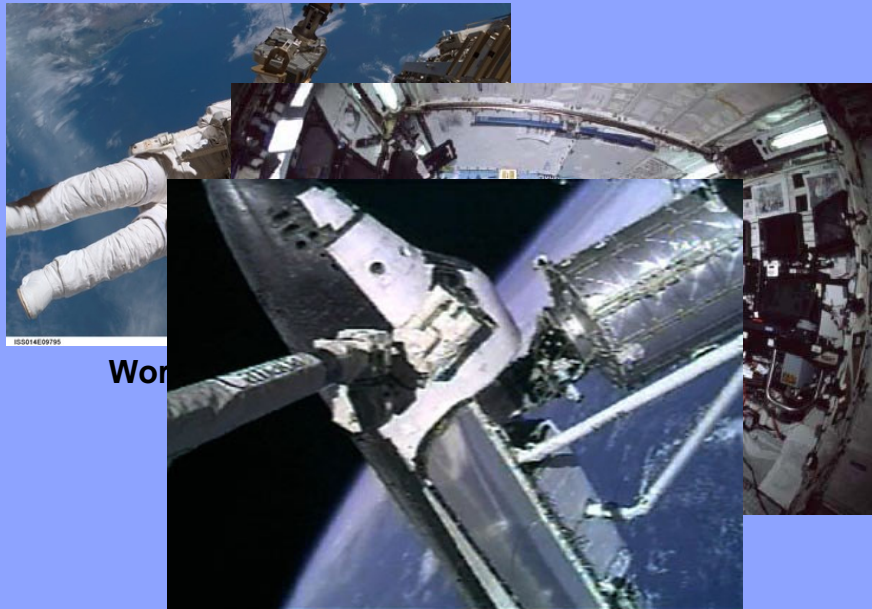
- A large Satellite in which people can live for long periods of time (example [ISS](#))
- Two important stations:



Russian MIR (old)



International Space Station (ISS) (modern)



Space Shuttle Docked with ISS

Space Shuttle

- Saturn V rockets worked well but **expensive** and **not reusable**
- In late 1970's NASA developed the **Space Shuttle**
- First launched in 1981
- Space Shuttle is **reusable**; can travel to and from space ("shuttle" people/things back and forth)
- With maintenance, each shuttle can be **used over and over**